

Write your name here

Surname					Other names				
Centre Number					Candidate Number				
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**Edexcel GCE**

**Biology**  
**Advanced**  
**Unit 6B: Practical Biology and Investigative Skills**

Wednesday 25 May 2011 – Morning <b>Time: 1 hour 30 minutes</b>	Paper Reference <b>6BI08/01</b>
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<b>You must have:</b> Ruler, Calculator, HB Pencil	Total Marks <input type="text"/>
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### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

### Information

- The total mark for this paper is 50.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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(ii) Choose **one** of the variables from (i). Suggest how this variable could have been controlled. Describe what effect it could have had on the results if it had not been controlled.

(2)

Variable .....

How to control the variable .....

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Effect on the results if the variable had not been controlled .....

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- 2 A student decided to investigate whether eating breakfast every day had an effect on the body mass of students in her class.

She selected twelve students (A to L), measured their body mass and asked if they ate breakfast regularly.

A copy of her raw results is shown below.

A 66kg, B 55kg, C 63kg, D 68kg, E 72kg, F 65kg,  
G 71kg, H 58kg, I 75kg, J 61kg, K 73kg, L 59kg.

Do they eat breakfast regularly?

A yes, B yes, C no, D yes, E no, F no, G no,  
H yes, I no, J yes, K no, L yes.

- (a) Write a suitable **null** hypothesis for this investigation.

(1)

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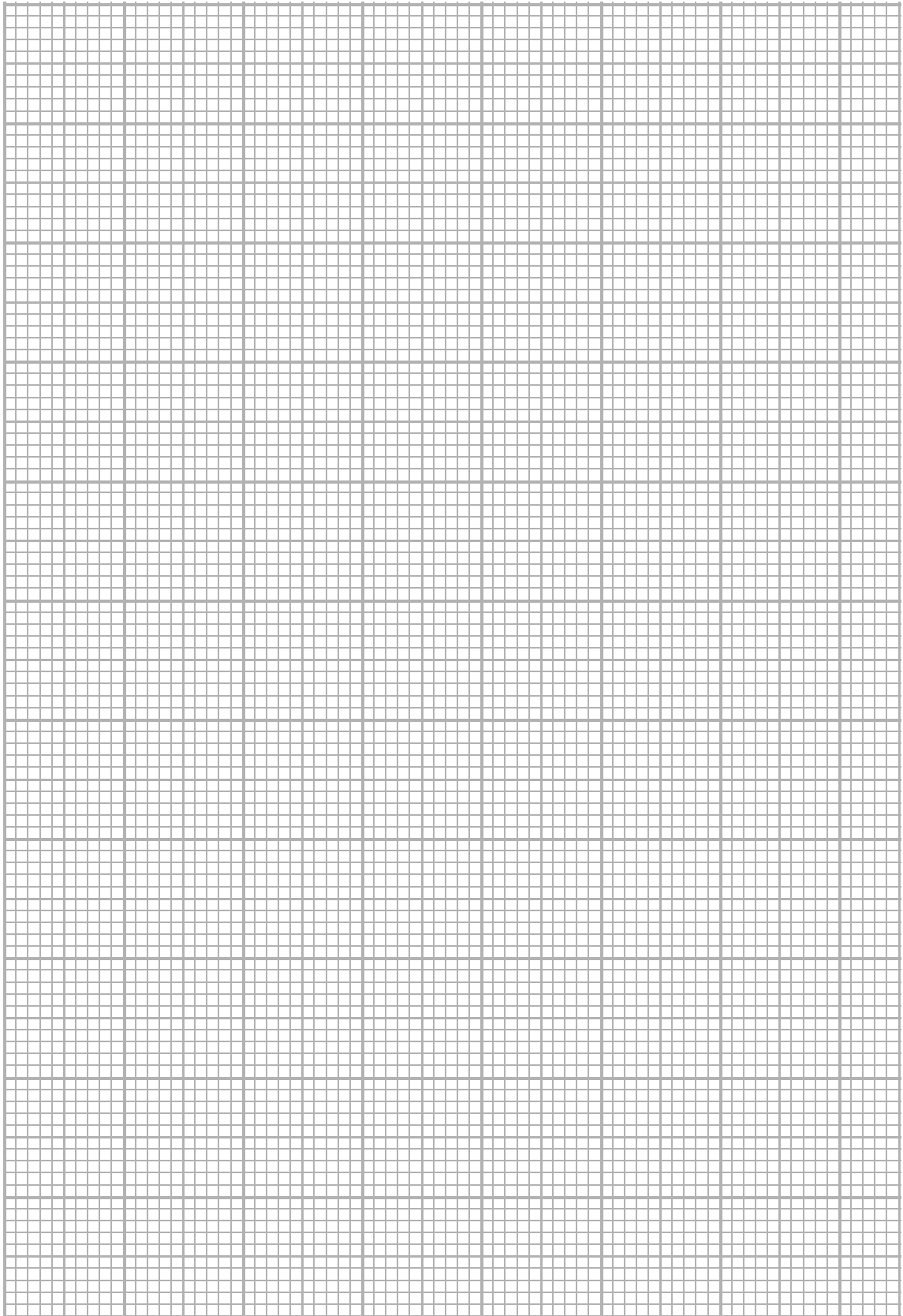
- (b) Prepare a suitable table to display the data obtained and calculate the mean body mass for students who regularly eat breakfast and those who do not.

(4)



(c) Using a suitable graphical form, compare the effects of eating breakfast regularly or not on the body mass of these students.

(3)



- (d) The student applied a  $t$ -test to the data she obtained.  
She obtained a result of  $t = 3.09$  from her calculation.

The table below shows critical values of  $t$  with 10 degrees of freedom, at different significance levels.

<b>Significance level (<math>p</math>)</b>	0.05	0.01	0.001
<b>Critical value of <math>t</math></b>	2.23	3.17	4.59

What conclusions can be drawn from this investigation?

Use the information provided in the table above and in the graph you have drawn.

(3)

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- (e) Suggest why it may **not** be reasonable to draw a firm conclusion from the results of this investigation.

(3)

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**(Total for Question 2 = 14 marks)**





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(d) A clear explanation of how your data are to be recorded, presented and analysed in order to draw conclusions from your investigation.

(4)

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